

EXHIBIT 6

**Numeracy Infusion for College Educators (NICE)
Faculty Development Program Schedule**



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Numeracy Infusion for College Educators (NICE)

Our Numeracy Infusion for College Educators (NICE) project seeks to foster the infusion of QR instruction and assessment into undergraduate courses in a broad range of disciplines. NICE is a predominantly online course that teaches faculty how to (a) apply Quantitative Literacy/Quantitative Reasoning (QL/QR) within a disciplinary context, (b) articulate QR learning goals/objectives that reflect best practices for teaching quantitative literacy, (c) identify and implement best practices for teaching QR: active learning, collaborative student learning, writing with numerical information, etc., (d) adapt and implement strategies for incorporating quantitative reasoning into course instruction, and (e) assess the effectiveness of QR initiatives and use the assessment results to further improve instruction.

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NICE Goals

- To provide instruction on best practices for teaching Quantitative Reasoning (QR) (e.g., quantitative reasoning and writing, discovery methods, etc.) and engage faculty in activities, learning exercises and discussions that promote a better understanding of how to effectively teach QR.
- To foster the development of instructional materials that make use of effective strategies for teaching QR and that ultimately improve students' understanding of QR.
- To infuse QR into a wide range of disciplines and CUNY schools.
- To increase faculty interest and comfort in teaching QR and sometimes to strengthen QR skills.
- To establish a network of CUNY faculty who are committed to improving the QR skills among our students and to create a collaborative environment where faculty work together to develop effective tools for QR instruction.

NICE Organization

There are 8 instructional units in NICE and each one lasts four weeks during our academic year program. It is estimated that each unit should average approximately 5-6 hours to complete. For each unit, you should follow the material in order, from top to bottom.

In addition to units 1-8, there are also some materials in the “Welcome to NICE” and the “NICE Wrap-up” content areas, although these are not instructional units. Faculty participants are also required to complete the materials associated with these non-instructional components of NICE. The materials in the “Welcome to NICE” content area must be completed prior to the start of NICE. The materials in the “NICE Wrap-up” content area must be completed after the instructional units are completed. The one exception to this includes the assessment results which cannot be submitted until the instructor has taught a QR-infused course following enrollment in NICE.

The instructional materials for NICE are found in the “NICE Course Units” content area of Blackboard (upper left-hand side). The “Welcome to NICE” and the “NICE Wrap-up” content areas are also situated here.

Required Activities and Tasks

In each unit of NICE there are a variety of readings and short exercises/activities. In addition, there are a set of key tasks for NICE. The specified core “tasks” are *activities/assignments in which faculty will be working on developing materials for their own course instruction*. The key tasks are as follows:

1. Articulate a set of QR learning goals for a lesson → Provide peer feedback on QR learning goals → Develop a revised set of QR learning goals that responds to peer feedback.
2. Create/adapt a QR lesson plan and exercise → Provide peer feedback on a QR lesson plan/exercise → Develop a revised QR lesson plan/exercise that responds to peer feedback → Implement QR Learning goals and lesson in class.
3. Create/adapt a QR assessment plan and instrument → Provide peer feedback on QR assessment plan/instruments → Develop a revised QR assessment plan/instrument that responds to peer feedback → Implement QR Assessment instrument in class.

In addition to these, we have a very brief exercise in Unit 1 where faculty present some material on disciplinary numbers and receive peer feedback.

All of these core required tasks are to be submitted in the “NICE Tasks/Blogs” folder.

In addition to these core NICE tasks (which are highlighted and described in more detail in the course units), each unit has a variety of interactive exercises and discussions that are also required for successful completion of NICE. Many of the units includes questions for interactive discussions that we will be having. **During the second semester of NICE (spring 2018), you will also make use of your QR assignment as well as your assessment instrument in your class!**

NICE Collaboration

Please note that NICE is a collaborative course and every faculty enrollee is assigned a peer collaborator for whom they will be expected to provide peer feedback on all the tasks associated with this project. Given the deadlines associated with NICE, it will be important to provide peer feedback in a timely fashion according to the deadlines specified in NICE. There is some possibility that we will rotate the assignments for peer feedback over the course of NICE.

In addition to providing and receiving feedback to/from peer collaborators participating in NICE, we also have an external consultant, Katherine Rowell from Sinclair Community College, who will be providing feedback to faculty on their instructional materials. In addition, Dr. Rebecca West, an adjunct faculty member in psychology at Lehman and a senior clinical research coordinator at the Icahn School of Medicine at Mt. Sinai, will be providing additional support and feedback to faculty.

Financial Compensation

All faculty participating in NICE receive \$300 for attending and participating in the 2-day CAT scoring session (this is a required in-person session). In addition, for timely completion of all the coursework associated with NICE, faculty are compensated \$1,200. (Timely completion of all coursework is essential as we rely on a process of faculty peer review throughout the NICE Program.) Please note that we cannot guarantee payment if faculty do not comply with the timely submission of all tasks associated with NICE. Finally, upon participating in our 2018 capstone conference and submitting assessment results (as well as a brief report indicating how the results inform course instruction), faculty will be compensated an additional \$500. This amounts to a total payment of \$2,000 for participation in NICE.

Important Dates for 2017-2018 Academic Year Program

August 23-24, 2017: NICE in-person session
August 23, 2017: Materials in Welcome to NICE folder due
September 6, 2017: Disciplinary numbers exercise is due*
September 16, 2017: Feedback on faculty disciplinary numbers is due*
September 22, 2017: Unit 1 materials due (readings, videos, discussions, exercises)
October 20, 2017: Unit 2 materials due (readings, videos, discussions, exercises)
October 20, 2017: QR learning goals for QR lesson/assignment are due
November 17, 2017: Unit 3 materials due (readings, videos, discussions, exercises)
November 17, 2017: Feedback on faculty QR learning goals for QR lesson/assignment is due
December 15, 2017: Unit 4 materials due (readings, videos, discussions, exercises)
December 15, 2017: Revised QR learning goals for QR lesson/assignment are due
January 12, 2018: Unit 5 materials due (readings, videos, discussions, exercises)
January 12, 2018: QR lesson/assignment/exercise is due
February 9, 2018: Unit 6 materials due (readings, videos, discussions, exercises)
February 9, 2018: Feedback on faculty QR lesson/assignment is due
February to May 2018: Administer QR lesson/Assignment in your classes (after you have revised assignment in response to peer feedback)!!!
March 9, 2018: Unit 7 materials due (readings, videos, discussions, exercises)
March 9, 2018: Revised QR lesson/assignment is due
April 6, 2018: Unit 8 materials due (readings, videos, discussions, exercises)
April 6, 2018: QR assessment plan/instrument is due
April 17 2018: Feedback on faculty QR assessment plan/instrument is due
April to May 2018: Administer QR Assessment in your class as well as IRB consent form (after you have revised assessment instrument in response to peer feedback!)
April 26, 2018: Revised QR assessment plan/instrument is due
May 28, 2018: Materials in Wrap-up folder due
June 1, 2018: NICE assessment results and PPT presentation due (be sure to administer IRB consent forms located in Blackboard to students before collecting data!)
Summer of 2018: Capstone conference

*For this activity, faculty can provide feedback to any faculty member(s) of their choosing (it need not be their assigned peer collaborator).

OUTLINE OF READINGS AND KEY TASKS

Welcome to NICE: Due August 23, 2017

Readings

- Bennett, Jeffrey. 2012. *Math for Life: Crucial Ideas You Didn't Learn in School*. Greenwood Village, CO: Roberts and Company Publishers.
- Berrett, Dan and Libby Sander. 2013. "[Many Students Don't Practice Vital Quantitative Literacy Skills in Class, Study Finds](http://theacademiclife.com/article/Many-Students-Dont-Practice/142987/#disqus_thread)." *The Chronicle of Higher Education*. November 14. Available URL: http://theacademiclife.com/article/Many-Students-Dont-Practice/142987/#disqus_thread

Task

- Please note that at our in-person session we will be discussing Bennett's book, *Math for Life*. This book will guide our discussion about what quantitative reasoning entails.
- Please complete the QR Questionnaire and Assessment in the "Welcome to NICE" folder **before our meeting!**

Unit 1 (QR and Making Numbers Meaningful): September 22, 2017

Readings

- NICHE/NICE website. "[Numeracy and Quantitative Reasoning](#)."
- NICHE/NICE website. "[Students' Quantitative Reasoning Skills](#)."
- NICHE/NICE website. "[Quantitative Reasoning Across the Curriculum](#)."
- Green, Elizabeth. 2014. "[Why Do Americans Stink at Math?](#)" *The New York Times* (July 23rd).
- Steen, Lynn Arthur. 2004. "[Everything I Needed to Learn about Averages I Learned in College](#)." *Peer Review* 6(4): 4-8.

Website to Review

- NICHE/NICE website. "[Examples of Quantitative Reasoning Across the Curriculum Programs](#)."

Additional Suggested Readings

- Madison, Bernard L. 2004. "[Two Mathematics](#)." *Peer Review* 6(4): 9-12.
- Wiest, Lynda R., Heidi J. Higgins, and Janet Hart Frost. 2007. "[Quantitative Literacy for Social Justice](#)." *Equity & Excellence in Education* 40: 47-55.
- NICE website. "[Organizations and Reference Materials](#)."

Tasks

- Your task for this unit is to post your example of "disciplinary numbers" (September 6) and to provide peer feedback (due on September 16th). See the blog "Disciplinary Numbers" to do this task.
- Please also participate in all the activities and discussions for this unit!

Unit 1 Discussion Facilitators: Sarah Hoiland and Esther Wilder

Unit 2 (QR Learning Outcomes): Due October 20, 2017

Readings

- NICHE/NICE website. "[Students' Quantitative Reasoning Skills](#)."
- NICHE/NICE website. "[Quantitative Reasoning Learning Goals](#)."
- Suskie, Linda. 2009. "[Developing Learning Goals](#)." Chapter 8 in *Assessing Student Learning: A Common Sense Guide*. SF, CA: John Wiley and Sons. Pp. 115-134.

Tasks

- Your task for this unit is to articulate QR learning goals for a lesson in one course you teach and plan to infuse QR (due at the end of Unit 2). Be sure to post your learning goals in the blog entitled "QR Learning Goals for QR Lesson/Assignment"!
- Please be sure to participate in all the activities and discussions for this unit!

Unit 2 Discussion Facilitators: Adijat Adebola and Tanvir Prince

Unit 3 (The Brain, Cognition, and QR): Due November 17, 2017

Readings

- Gigerenzer, Gerd, Wolfgang Gaissmaier, Elke Kurz-Milcke, Lisa M. Schwartz, and Steven Woloshin. 2009. "[Knowing Your Chances](#)." *Scientific American* 20(2): 44-51.
- Parker-Pope, Tara. 2011. "[Mammogram's Role as Savior is Tested](#)." *New York Times* (October 24).
- Parker-Pope, Tara. 2012. "[Older Men Still Being Screened for Prostate Cancer](#)." *New York Times* (April 25).
- Paulos, John Allen. 2011. "[Weighing the Positives: Breaking Down the Latest Mammogram Math](#)." *Scientific American* 305(12): 20. See also "[Letters to the Editor](#)" in reply to this piece (2012, *Scientific American* 306(4): 8-9).
- Pinker, Steven. 1997. [How the Mind Works](#). New York: Norton. Pp. 343-351.

Additional Suggested Readings

- NICHE/NICE website. "[Resources on QR, Cognition and the Brain](#)."
- Kahneman, Daniel. 2002. "[Maps of Bounded Rationality: A Perspective on Intuitive Judgment and Choice](#)." Nobel Prize Lecture.

Unit 3 (The Brain, Cognition, and QR): Due November 17 (continued)

Tasks

- For this unit, your task is to provide feedback on a colleague's learning goals or outcomes for a QR lesson (please post your feedback in the Blackboard blog “QR Learning Goals for QR Lesson;” it is due at the end of this unit)! More specific guidance on how to provide peer feedback is provided in Unit 3. (While you have been assigned one peer colleague for this task, we encourage you to review the QR learning goals of multiple colleagues and you are welcome to provide additional feedback to them as well!)
- Please be sure to participate in all the activities and discussions for this unit!

Unit 3 Discussion Facilitators: Sandra Campeanu and Emalinda McSpadden

Unit 4 (QR and Writing): Due December 15, 2017

Readings

- Lutsky, Neil. “[10 Foundational QR Questions](#).”
- Miller, Jane E. 2004. “*Seven Basic Principles*.” [Chapter 2](#) in *The Chicago Guide to Writing about Numbers*. Chicago: University of Chicago Press. Pp. 11-32.
- NICHE/NICE website. “[Best Practices for Quantitative Reasoning Instruction](#).”

Materials/Web Resources to Explore

- Carleton College's Quantitative Inquiry, Reasoning and Knowledge (QuIRK) Initiative [rubric](#) for assessing quantitative reasoning in student writing. (Please note that this assessment rubric is intended for use at the institutional level.)
- NICHE/NICE website. “[Teaching Materials for Mathematical, QR, and Statistical Skills](#).”
- NICHE/NICE website. “[Internet Resources for Data Analysis](#).”
- NICHE/NICE website. “[Internet Exercises and Modules for Teaching Quantitative Reasoning Skills](#).”

Suggested Additional Readings

- Grawe, Nathan D. and Carol A. Rutz. 2009. “[Integration with Writing Programs: A Strategy for Quantitative Reasoning Program Development](#).” *Numeracy* 2(2): Article 2.
- Lutsky, Neil. 2008. “[Arguing with Numbers: Teaching Quantitative Reasoning through Argument and Writing](#).” In *Calculation vs. Context: Quantitative Literacy and Its Implications for Teacher Education*, edited by Bernard L. Madison and Lynn Arthur Steen. Mathematical Association of America. Pp. 59-74.
- Madison, Bernard L. 2012. “[If Only Math Majors Could Write . . .](#)” *Numeracy* 5(1): Article 6.
- NICHE/NICE website. “[Resources for Integrating QR and Mathematics in Writing, Reading and Communication](#).”

Unit 4 (QR and Writing): Due December 15 (continued)

Tasks

- Based on the peer feedback you have received, your task is to revise/refine your QR learning goal(s), due at the end of this unit. (Please be sure to post your revised learning goals in the Blackboard blog forum entitled "Revised Learning Goals for QR Lesson").
- Your task for this unit is also to begin to develop and/or adapt a QR lesson/assignment that corresponds to the learning goal(s) you have articulated (due at the end of Unit 5!). (Please note that there are many examples available at our [NICHE/NICE page of exercise and modules](#) as well as our [NICHE/NICE page of samples of exercise developed by NICHE/NICE faculty](#).)
- Please be sure to participate in all the activities and discussions for this unit!

Unit 4 Discussion Facilitators: Minkyung Choi, Tonya Johnson, and Anne Marie Marshall

Unit 5 (Discovery Methods): Due January 12, 2018

Readings

- Brooks, Jacqueline Grennon and Martin G. Brooks. 2001. "[Becoming a Constructivist Teacher](#)." Chapter 9 in *In Search of Understanding: The Case for Constructivist Classrooms*. Revised Edition. New York: Prentice Hall.
- Stern, Frances. 2000. "[Choosing Problems with Entry Points for All Students](#)." *Mathematics Teaching in the Middle Schools* 6(1): 8-11.

Additional Suggested Readings

- Caine, Geoffrey and Renate N. Caine. 1991. [Making Connections: Teaching and the Human Brain](#). Alexandria, VA: Association for Supervision and Curriculum Development.
- Cakir, Mustafa. 2008. "[Constructivist Approaches to Learning in Science and their Implications for Science Pedagogy](#)." *International Journal of Environmental & Science Education* 3(4): 193-206.
- Switzer, Jamie S. 2004. "[Teaching Computer-Mediated Visual Communication to a Large Section: A Constructivist Approach](#)." *Innovative Higher Education* 29(2): 89-101.
- Tout, Dave, and Mary Jane Schmitt. 2002. "[The Inclusion of Numeracy in Adult Basic Education](#)." Chapter 3 in *The Annual Review of Adult Learning and Literacy*. SF, CA: Jossey Bass. Pp. 152-202.
- [Common Core Standards for Mathematics](#).

Tasks

- Your task for this unit is to complete your work on developing/adapting a QR lesson/assignment that corresponds to your QR learning goal(s). You will want to post it on the blog "QR Lesson/Assignment" by the end of this unit.
- Please be sure to participate in all the activities and discussions for this unit!

Unit 5 Discussion Facilitators: Cynthia Jones and Alisa Roost

Unit 6 (Representations of Data): Due February 9, 2018

Readings

- Kemp, Marian and Barry Kissane. 2010. "[A Five Step Framework for Interpreting Tables and Graphs in their Contexts.](#)" ICOTS8. Invited paper, refereed. 6 pp.
- McFarland, Jenny. 2010. "[Teaching and Assessing Graphing Using Active Learning.](#)" *MathAMATYC Educator* 1(2): 32-39.
- Vacher, Len. "[Teaching With Spreadsheets Across the Curriculum.](#)" (Please explore the website.)
- Wainer, Howard. 1992. "[Understanding Graphs and Tables.](#)" *Educational Researcher* 21(1): 14-23.

Additional Suggested Readings

- Burson, George. 1990. "[Using Charts and Graphs to Teach Immigration History.](#)" *OAH Magazine of History* 4(4): 46-49.
- NICHE/NICE website. "[Resources on Representations of Quantitative Data.](#)"
- Vacher, H. Len and Emily Lardner. 2010. "[Spreadsheets Across the Curriculum 1: The Idea and the Resource.](#)" *Numeracy* 3(2): Article 6.

Tasks

- Your task for this unit is to provide feedback to a colleague on his/her QR lesson/assignment (due at the end of this unit). In doing this you will want to actually go through the process of "doing" a colleague's QR lesson/assignment and making sure that everything is clear, etc. (While you have been assigned one peer colleague for this task, we encourage you to review the QR lessons/assignments of multiple colleagues and you are welcome to provide additional feedback to them as well!)
- Please be sure to participate in all the activities and discussions for this unit!

Unit 6 Discussion Facilitators: Edward Lehner and Rosa L. Rivera-McCutchen

Unit 7 (QR Assessment): Due March 9, 2018

Readings

- Banta, Trudy W. 2007. "[Can Assessment for Accountability Complement Assessment for Improvement?](#)" *Peer Review* (Spring): 9-12.
- Ebert-May, Diane, Janet Batzli, and Heejun Lim. 2003. "[Disciplinary Research Strategies for Assessment of Learning.](#)" *BioScience* 53(12): 1221-1228.
- NICHE/NICE website. "[Assessing Quantitative Reasoning.](#)"
- Trochim, William. 2006. "[An Evaluation Culture.](#)"

Website to Review

- NICHE/NICE website. "[Examples of QR Assessment Instruments.](#)"

Unit 7 (QR Assessment): Due March 9 (continued)

Additional Suggested Readings

- Davis, Susan L. and A. Katherine Morrow. [*Creating Usable Assessment Tools: A Step-by-Step Guide to Instrument Design*](#).
- NICHE/NICE website. "[Resources on Quantitative Reasoning Assessment](#)."
- Suskie, Linda. 2009. "[How Can Student Learning Be Assessed?](#)" Chapter 2 in *Assessing Student Learning: A Common Sense Guide*. SF, CA: John Wiley and Sons. Pp. 19-35.
- Taylor, Corrine. 2009. "[Assessing Quantitative Reasoning](#)." *Numeracy* 2(2): Article 1.
- NICHE/NICE website. "[Assessing Quantitative Reasoning](#)."
- Suskie, Linda. 2009. "[How Can Student Learning Be Assessed?](#)" Chapter 2 in *Assessing Student Learning: A Common Sense Guide*. SF, CA: John Wiley and Sons. Pp. 19-35.
- Trochim, William. 2006. "[An Evaluation Culture](#)."

Tasks

- Your task for this unit is to revise your QR lesson/assignment in response to the peer feedback you have received. Please post that in the blog entitled "Revised QR Lesson/Assignment." NOTE: AFTER YOU REVISE YOUR ASSIGNMENT PLEASE ADMINISTESR IT IN YOUR CLASS THIS SEMESTER!!!
- In addition, you will want to begin to develop a draft of a QR assessment instrument that corresponds to your QR learning goals and assesses the effectiveness of your QR lesson /exercise (due at the end of Unit 8, or April 6). Please note that we do not want a rubric to grade your lesson/assignment – we ask for you to develop an entirely separate assessment instrument!
- Please be sure to participate in all the activities and discussions for this unit!

Unit 7 Discussion Facilitators: Felipe Pimentel and Crystal C. Rodriguez

Unit 8 (Math Anxiety & QR Stereotypes and Culture): Due April 6, 2018

Readings

- Guiso, Luigi, Ferdinando Monte, Paola Sapienza, and Luigi Zingales. 2008. "[Culture, Gender and Math](#)." *Science* 320: 1164-65.
- Steele, Claude. 1999. "[Thin Ice: Stereotype Threat and Black College Students](#)." *The Atlantic* (August).

Additional Suggested Readings

- NICHE/NICE website. "[Resources on Inequality and Multicultural Mathematics](#)."
- Ball, Deborah Loewenberg. 2009. "[Expanding Who is Good at Math](#)." Seyhan N. Ege Memorial Symposium.
- Rattan, Anita, Catherine Good and Carol S. Dweck. 2012 "[It's OK — Not Everyone Can be Good at Math”: Instructors with an Entity Theory Comfort \(and Demotivate\) Students](#)." *Journal of Experimental Social Psychology* 48(3): 731-37.

Unit 8 (Math Anxiety & QR Stereotypes and Culture): Due April 6 (continued)

Tasks

- For this unit, your task is develop/adapt a QR assessment instrument designed to measure whether you achieved your QR learning goals (due at the end of this unit!).
- Please be sure to participate in all the activities and discussions for this unit!

Unit 8 Discussion Facilitators: Nelson Nunez-Rodriguez and Enyuan Shang

NICE Wrap-up: Due April to June 2018

Tasks

- By **April 17, 2018** your task is to provide constructive feedback on a colleague's QR assessment instrument (please post this in the Blackboard blog "QR Assessment Instrument"). (While you have been assigned one peer colleague for this task, we encourage you to review the QR assessment instruments of multiple colleagues and you are welcome to provide additional feedback to them as well!)
- By **April 26, 2018** you will want to post your revised QR assessment instrument that responds to the peer feedback you have received (please post this in the blog entitled "Revised QR Assessment Instrument." NOTE: AFTER YOU REVISE YOUR ASSESSMENT INSTRUMENT PLEASE ADMINISTESR IT IN YOUR CLASS THIS SEMESTER!!!
- You will also want to complete the final NICE questionnaire/assessment included in the "NICE Wrap-up" folder. We ask that you please do this by **May 28, 2018!**
- After you have completed NICE and taught your QR infused course, you will want to submit your assessment results (both the actual data as well as a summary of what the results reveal and what you learned from them). Please post the assessment results by **June 1, 2018.**
- After you have completed NICE, we also ask that you post your presentation (e.g., PPT slides) you have prepared for the capstone conference in Blackboard. Our capstone conference will be held in June 2018 (likely on June 8, 2018). Please do this in the blog "Capstone Conference."